

FIGURE F98–9—Continued

Loaded vehicle mass (kg)	Equivalent inertial mass (kg)	Force coefficients		Force at 65 km/h (nt)	70 to 60 km/h coastdown calibration times		
		A (nt)	C (nt/(km/ h) ²)		Target time (sec)	Allowable tolerance	
						Longest time (sec)	Shortest time (sec)
716–725	720	54.13	.0335	195.5	10.26	10.5	10.0
726–735	730	55.01	.0335	196.6	10.34	10.6	10.1
736–745	740	55.88	.0336	197.8	10.42	10.7	10.2
746–755	750	56.75	.0336	198.9	10.50	10.8	10.2
756–765	760	57.63	.0337	200.1	10.58	10.9	10.3
766–775	770	58.50	.0338	201.2	10.66	10.9	10.3
776–785	780	59.38	.0338	203.3	10.74	11.0	10.4
786–795	790	60.25	.0339	204.5	10.82	11.1	10.5
796–805	800	61.12	.0339	205.6	10.91	11.2	10.6
806–815	810	62.00	.0340	206.7	10.99	11.3	10.7
816–825	820	62.87	.0341	207.9	11.07	11.4	10.8
826–835	830	63.75	.0341	209.0	11.15	11.5	10.8
836–845	840	64.62	.0342	210.1	11.24	11.5	10.9
846–855	850	65.49	.0343	211.3	11.32	11.6	11.0
856–865	860	66.37	.0343	212.4	11.40	11.7	11.1
866–873	870	67.24	.0344	213.5	11.48	11.8	11.2

(c) The dynamometer shall be adjusted to reproduce the specified road load as determined by the most recent calibration. Alternatively, the actual vehicle road load can be measured and duplicated:

(1) Make at least 5 replicate coastdowns in each direction from 70 to 60 km/h on a smooth, level track under balanced wind conditions. The driver must have a mass of 80 ±10 kg and be in the normal driving position. Record the coastdown time.

(2) Average the coastdown times. Adjust the dynamometer load so that the coastdown time is duplicated with the vehicle and driver on the dynamometer.

(3) Alternate procedures may be used if approved in advance by the Administrator.

[63 FR 11849, Mar. 11, 1998]

§ 86.530–78 Test sequence, general requirements.

(a) Ambient temperature levels encountered by the test vehicle throughout the test sequence shall not be less than 20 °C (68 °F) nor more than 30 °C (86 °F). The vehicle shall be approximately level during the emission test to prevent abnormal fuel distribution.

(b) [Reserved]

§ 86.531–78 Vehicle preparation.

(a) The manufacturer shall provide additional fittings and adapters, as required by the Administrator * * *, such as * * * to accommodate a fuel drain at the lowest point possible in the tank(s) as installed on the vehicle and to provide for exhaust sample collection.

(b) [Reserved]

§ 86.532–78 Vehicle preconditioning.

(a) The vehicle shall be moved to the test area and the following operations performed:

(1) The fuel tank(s) shall be drained through the provided fuel tank(s) drain(s) and charged with the specified test fuel, § 86.513, to half the tank(s) capacity.

(2) The vehicle shall be placed, either by being driven or pushed, on a dynamometer and operated through one Urban Dynamometer Driving Schedule test procedure (see § 86.515 and appendix I). The vehicle need not be cold, and may be used to set dynamometer horsepower.

(b) Within five (5) minutes of completion of preconditioning, the vehicle shall be removed from the dynamometer and may be driven or pushed to the soak area to be parked. The vehicle shall be stored for not less than the following times prior to the cold start exhaust test.

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	Hours
Class I	6
Class II	8
Class III	12

In no case shall the vehicle be stored for more than 36 hours prior to the cold start exhaust test.

§ 86.535-90 Dynamometer procedure.

(a) The dynamometer run consists of two tests, a "cold" start test and a "hot" start test following the "cold" start by 10 minutes. Engine startup (with all accessories turned off), operation over the driving schedule, and engine shutdown make a complete cold start test. Engine startup and operation over the first 505 seconds of the driving schedule complete the hot start test. The exhaust emissions are diluted with ambient air and a continuously proportional sample is collected for analysis during each phase. The composite samples collected in bags are analyzed for hydrocarbons, carbon monoxide, carbon dioxide, and, optionally, for oxides of nitrogen. A parallel sample of the dilution air is similarly analyzed for hydrocarbon, carbon monoxide, carbon dioxide, and, optionally, for oxides of nitrogen. Methanol and formaldehyde samples (exhaust and dilution air) are collected and analyzed for methanol-fueled vehicles (a single dilution air formaldehyde sample covering the total time of the test may be collected in place of individual test phases).

(b) [Reserved]

(c) The vehicle speed, as measured from the dynamometer roll, shall be used. A speed vs. time recording, as evidence of dynamometer test validity, shall be supplied on request of the Administrator.

(d) Practice runs over the prescribed driving schedule may be performed at test points, provided an emission sample is not taken, for the purpose of finding the minimum throttle action to maintain the proper speed-time relationship, or to permit sampling system adjustments.

(e) The drive wheel tires must be inflated to the manufacturer's recommended pressure, ± 15 kPa (± 2.2 psi). The drive wheel tire pressure shall be reported with the test results.

(f) If the dynamometer has not been operated during the two-hour period immediately preceding the test, it shall be warmed up for 15 minutes by operating at 50 km/h (31 mph) using a nontest vehicle, or as recommended by the dynamometer manufacturer.

(g) If the dynamometer horsepower must be adjusted manually, it shall be set within one hour prior to the exhaust emissions test phase. The test vehicle shall not be used to make this adjustment. Dynamometers using automatic control of preselectable power settings may be set anytime prior to the beginning of the emissions test.

(h) The driving distance, as measured by counting the number of dynamometer roll revolutions, shall be determined for the transient cold start, stabilized cold start, and transient hot start phases of the test.

[54 FR 14551, Apr. 11, 1989]

§ 86.536-78 Engine starting and re-starting.

(a)(1) The engine shall be started according to the manufacturer's recommended starting procedures. The initial 20 second idle period shall begin when the engine starts.

(2) *Choke operation.* (i) Vehicles equipped with automatic chokes shall be operated according to the instructions in the manufacturer's operating instructions or owner's manual including choke setting and "kick-down" from cold fast idle. The transmission shall be placed in gear 15 seconds after the engine is started. If necessary, braking may be employed to keep the drive wheels from turning.

(ii) Vehicles equipped with manual chokes shall be operated according to the manufacturer's operating instructions or owner's manual. Where times are provided in the instructions, the Administrator may specify the specific point for operation, within 15 seconds of the recommended time.

(3) The operator may use the choke, throttle etc. where necessary to keep the engine running.

(4) If the manufacturer's operating instructions or owner's manual do not specify a warm engine starting procedure, the engine (automatic and manual choke engines) shall be started by